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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,655	10/20/2003	Jun Koyama	0756-7206	4423

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EXAMINER	
LUI, DONNA V	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/687,655	KOYAMA, JUN	
	Examiner	Art Unit	
	Donna V. Lui	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/20/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: Specification lacks information corresponding to numbers labeled in figure 6, numeral 209 in figure 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-6, 9-11, and 17-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagi et al. (Pub. No.: US 2002/0036636 A1).

With respect to **Claim 1**, Yanagi teaches a charge pump circuit comprising switches and a transistor on a substrate *(See figures 6, 12, 15, and 16; [0050], line 1)*. Although figure 12 shows the use of switches and figure 16 shows the use of a field effect transistor it would have been obvious for a person of ordinary skill in the art at the time the invention was made to use thin film transistors in the charge pump circuit of Yanagi so as to have a faster response time and higher reliability, characteristic of a thin film transistor.

With respect to **Claim 2**, Yanagi teaches a display device comprising: a charge pump control circuit comprising switches on a substrate *(See figures 6: overview of display, 12: charge pump power supply circuit 23a, 15: main structure of power supply, 16: regulator; [0050], line 1)*; a switching element *(SW1)*; and a capacitor *(figure 12, C1: capacitor)*, wherein the switching element is driven correspondingly to an output signal of the charge pump control circuit to step a voltage up or down *([0069]; [0074], lines 1-8 and 11-14; note that since the charge pump power supplies decide the frequency fosch and the switching elements SW1 through SW4 are decided according to the required load current and frequency fosch then it is equivalent to an output signal of the charge pump control circuit)*. Although figure 12 shows the use of switches it

would have been obvious for a person of ordinary skill in the art at the time the invention was made to use thin film transistors in the charge pump circuit of Yanagi so as to have a faster response time and higher reliability, characteristic of a thin film transistor.

With respect to **Claim 3**, Yanagi teaches the charge pump control circuit can vary a clock frequency to input to the switching element *([0074], lines 1-8)*.

With respect to **Claim 4**, Yanagi teaches the frequency varying unit is controlled by a CPU *(See figure 6, 32: operation mode controller ~ CPU; note that the control signal is CNT inputted to the charge-pump power supply (shown in figure 12) through the clock generator (11: clock generator, also shown in figure 17))*.

With respect to **Claim 5**, Yanagi teaches the CPU is comprised of a thin film transistor *(See figure 6 and 14, 2: TFT panel)*. Note that a CPU is a semiconductor as are thin film transistors, therefore it would have been obvious for a person of ordinary skill in the art at the time the invention was made to have a CPU comprised of thin film transistors in the display device of Yanagi so as to have a faster response time and higher reliability, characteristic of a thin film transistor.

With respect to **Claim 6**, Yanagi teaches a display device comprising: a variable frequency-dividing circuit comprising a transistor *([0121], figure 17)*; and a CPU comprising a thin film transistor *(See figure 6, 32: operation mode controller~ CPU, [0050], line 1)*, wherein

the variable frequency-dividing circuit is controlled by the CPU *(the control signal is CNT)*, and wherein a dividing ratio is varied according to a display mode *([0095]; [0096]; note that since CNT is dependent on the power save signal/mode then the dividing ratio is also dependent on the power save signal/mode)*. Although figure 17 shows the use of a field effect transistor it would have been obvious for a person of ordinary skill in the art at the time the invention was made to use thin film transistors in the frequency-dividing circuit of Yanagi so as to have a faster response time and higher reliability, characteristic of a thin film transistor.

With respect to **Claims 9-11**, Yanagi teaches the display device is a liquid crystal display device *([0043], lines 1-3)*.

With respect to **Claims 17-19**, Yanagi teaches a display device wherein the display device is applied to portable electrical equipment such as a portable phone *([0172])*.

6. **Claims 12 and 13-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagi in view of Nakajima (Pub. No.: US 2003/0011586 A1).

With respect to **Claims 13-15**, Yanagi does not teach the display device is an EL display device.

Nakajima teaches the display device an EL display device *([0181], lines 5-9; the charge pump circuit is applicable to both an LCD and EL display).*

It would have been obvious for a person of ordinary skill in the art at the time the invention was made to teach the display device as an EL display device, as taught by Nakajima, to the display of Yanagi, so as to have greater versatility in implementing such a device.

With respect to **Claim 12**, Kimura does not teach the display device is a liquid crystal display device.

Nakajima teaches a circuit that can be implemented in both an EL and liquid crystal display *([0181], lines 5-9; the charge pump circuit is applicable to both an LCD and EL display).*

It would have been obvious for a person of ordinary skill in the art at the time the invention was made to teach the display device as a liquid crystal display device, as taught by Nakajima, to the display of Kimura, so as to have greater versatility in implementing such a device.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 7-8, 16, and 20** are rejected under 35 U.S.C. 102(e) as being anticipated by Kimura et al. (Pub. No.: US 2002/0180721 A1).

With respect to **Claim 7**, Kimura teaches a display device comprising: a switching element comprising a PIN diode *([0272], lines 1-11)*.

With respect to **Claim 8**, Kimura teaches the PIN diode is formed simultaneously with the thin film transistor *([0272], lines 1-5)*.

With respect to **Claim 16**, Kimura teaches the display device is an EL display device *([0001], lines 1-4)*.

With respect to **Claim 20**, Kimura teaches the display device is applied to electrical equipment comprising a notebook type personal computer and a mobile phone *([0296])*.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donna V. Lui whose telephone number is (571) 272-4920. The examiner can normally be reached on Monday through Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571)272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Donna V Lui
Examiner
Art Unit 2629

AMR A. AWAD
PRIMARY EXAMINER